

Remarks

Claims 6-15 are pending, with claims 6, 8 and 12 being the independent claims. claims 1-5 were previously cancelled.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 6-10 and 12-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawahara *et al.* (US 2003/0013684) ("Kawahara") in view of Nauen *et al.* ("Nauen"). Claims 8, 11, 12 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Miura *et al.* (US 2001/0046986) ("Miura") in view of Nauen. Applicants respectfully traverse these rejections.

A. Claims 6-10 and 12-15 Are Not Prima Facie Obvious over Kawahara in View of Nauen

The Examiner acknowledges that Kawahara "does not disclose a synergistic composition comprising imidacloprid and clothianidin from 10:1 to 1:10, specifically 1:1." (Office Action, page 4.) However, the Examiner states that Nauen's "Table 2 discloses the efficacy of clothianidin and imidacloprid as 1.28 and 1.09 respectively. Imidacloprid and clothianidin showed similar efficacy against *M. persicae* in leaf-dip bioassays." (*Id.*) The Examiner concludes that:

It would have obvious to . . . combine the teachings of Kawahara *et al.* and Nauen *et al.* to formulate a synergistic composition comprising imidacloprid and clothianidin from 10:1 to 1:10, specifically 1:1. One would have been motivated to include one of these combinations because Nauen *et al.* teach that imidacloprid and clothianidin showed similar efficacy against *M. persicae* in leaf-dip bioassays. It would be prima facie obvious to combine the two compositions each of which is taught by Nauen *et al.* showed similar efficacy against *M. persicae* at a rate of 1.28 and 1.09, respectively. See In re Kerkhoven 205 USPQ 1069, (C.C.P.A.

1980). Thus, combining imidacloprid with clothianidin in a 1:1 ratio is *prima facie* obvious.

(Office Action, pages 4 and 5.) Applicants respectfully disagree.

Applicants reiterate that for the reasons detailed in Applicants' Amendment and Reply of April 14, 2009, claims 6-10 and 12-15 are not *prima facie* obvious in view of the cited references.

Specifically, as acknowledged by the Examiner, Kawahara does not disclose presently claimed synergistic composition comprising imidacloprid and clothianidin.

Nauen does not cure the deficiencies of Kawahara. Table 2 of Nauen, at most, discloses that imidacloprid and clothianidin have similar efficacies against *Myzus persicae* in leaf-dip bioassays. The Examiner erroneously equates the individual efficacies of imidacloprid and clothianidin to the synergistic mixing ratio of 1:1 of imidacloprid and clothianidin. The mere fact that imidacloprid and clothianidin have similar efficacies against *Myzus persicae* in leaf-dip bioassays would not give rise to a reasonable expectation that a synergistic composition would be obtained when imidacloprid is combined with clothianidin at 1:1 ratio, because synergism is shown where "the combined action of two or more agents . . . that is greater than the sum of the action of one of the agents used alone." *In Re Luvisi*, 144 U.S.P.Q. 646, 652 (CCPA 1965).

The Examiner cites *In re Kerkhoven* to support the rejection. Applicants respectfully submit that the facts in the present case is distinguishable from *In re Kerkhoven*. *In re Kerkhoven* dealt with the patentability of claims directed to a process of preparing a spray-dried detergent by mixing together spray-dried nonionic detergents

and anionic detergents. According to the United States Court of Customs and Patent Appeals, the claimed invention "require no more than the mixing together of two conventional spray-dried detergents." *In re Kerkhoven*, 205 U.S.P.Q. at 1072. Applicants note that the claims in *In re Kerkhoven* only require combining a spray-dried nonionic detergent with a spray-dried anionic detergent, and does not require combining a specific spray-dried nonionic detergent with a specific spray-dried anionic detergent. Hence, the holdings of *In re Kerkhoven* cannot be broadly applied to presently claimed composition because, contrary to the facts in *In re Kerkhoven*, present claims 6-10 and 12-15 require a composition of specifically selected compounds within the specified range of mixing ratio to achieve a synergic effect. Thus, the facts in the present case is distinguishable from *In re Kerkhoven*.

In sum, nothing in the cited references that would provide a reason for making a synergistic composition comprising imidacloprid and clothianidin having a mixing ratio from 10:1 to 1:10, or 1:1, as required by present claims 6-10 and 12-15. Accordingly, the Examiner has not established a *prima facie* case of obviousness of claims 6-10 and 12-15.

B. Claims 8, 11, 12 and 14 Are Not Prima Facie Obvious over Miura in View of Nauen

The Examiner acknowledges that Miura "does not disclose a synergistic composition comprising imidacloprid and clothianidin from 10:1 to 1:10, specifically 1:1." (Office Action, page 6.) However, according to the Examiner, Nauen's "Table 2 discloses the efficacy of clothianidin and imidacloprid as 1.28 and 1.09 respectively. Imidacloprid and clothianidin showed similar efficacy against *M. persicae* in leaf-dip bioassays." (*Id.*) The Examiner then concludes that:

It would have obvious to . . . combine the teachings of Miura et al. and Nauen et al. to formulate a synergistic composition comprising imidacloprid and clothianidin from 10:1 to 1:10, specifically 1:1. One would have been motivated to include one of these combinations because Nauen et al. teach that imidacloprid and clothianidin showed similar efficacy against *M. persicae* in leaf-dip bioassays. It would be *prima facie* obvious to combine the two compositions each of which is taught by Nauen et al. showed similar efficacy against *M. persicae* at a rate of 1.28 and 1.09, respectively. See In re Kerkhoven 205 USPQ 1069, (C.C.P.A. 1980). Thus, combining imidacloprid with clothianidin in a 1:1 ratio is *prima facie* obvious.

(Office Action, page 7.) Applicants respectfully disagree.

Applicants reiterate that for the reasons detailed in Applicants' Amendment and Reply of April 14, 2009, claims 8, 11, 12 and 14 are not *prima facie* obvious in view of the cited references.

Specifically, as acknowledged by the Examiner, Miura does not disclose a synergistic composition comprising imidacloprid and clothianidin. Additionally, for the same reasons stated above, Nauen does not cure the deficiencies of Miura. Accordingly, the Examiner has not established a *prima facie* case of obviousness of claims 8, 11, 12 and 14.

C. The Evidence of Unexpected Results Rebuts Any Prima facie Case of Obviousness

As discussed above, the Examiner has not established a *prima facie* case of obviousness of present claims 6-15. Moreover, the record demonstrates that *prima facie* obviousness, even if it were established, is rebutted by the synergistic effects obtained with the claimed composition.

The Examiner agrees that "Table K-N demonstrate synergy for a method of controlling whitefly, caterpillars and green peach aphides by contacting the insects with a

composition comprising imidacloprid and clothianidin in a 1:1 ratio." (Office Action, page 7.) However, the Examiner is of the opinion that the showing is not commensurate in scope with the present claims.

Additional evidence of synergistic effects obtained with presently claimed compositions at different mixing ratios of imidacloprid to clothianidin is provided in the accompanying Declaration by Dr. Wolfram Andersch under 37 C.F.R. § 1.132 submitted herewith.

In the study described in Example A of the Declaration, cabbage leaves were first treated by being sprayed with the preparations of tested compounds individually, or with preparations of the claimed compositions. The cabbage leaves were then infested with larvae of the diamond back moth (*Plutella xylostella*), and the efficacy of insect control was evaluated 1 day or 2 days after the inoculation. (Declaration, Example A and Tables A1 and A2.) An efficacy of 0% indicates that none of the caterpillars were killed, and an efficacy of 100% indicates that all the caterpillars were killed.

As shown in Table A1, for example, when applied individually at 80 ppm of imidacloprid or 20 ppm of clothianidin, efficacies of 0% and 15% were observed for imidacloprid and clothianidin 1 day after the inoculation, respectively. However, an efficacy of 40% was observed when the claimed composition (80 ppm imidacloprid + 20 ppm clothianidin, wherein the ratio of imidacloprid to clothianidin was 4:1 (80 ppm: 20 ppm)) was applied. Thus, the efficacy (40%) of the claimed composition was ***much greater than*** the sum of the efficacy of imidacloprid to clothianidin applied individually (0% + 15% = 15%). Therefore, the claimed composition (mixing ratio of imidacloprid to

clothianidin = 4:1) has a synergistic effect in controlling *Plutella xylostella*, according to the definition of synergism in *In Re Luvisi*.

Alternatively, according to Colby formula, the calculated efficacy of the claimed composition is 15%. However, the observed efficacy of the claimed composition was 40%, which is ***much greater*** than the calculated efficacy. Therefore, the claimed composition (mixing ratio of imidacloprid to clothianidin = 4:1) has a synergistic effect in controlling *Plutella xylostella*, according to Colby formula.

Similarly, as shown in Table A1, at the mixing ratios of imidacloprid to clothianidin of ***2:1, 1:2, 1:4 and 1:8***, the claimed compositions have synergistic effects in controlling *Plutella xylostella*, according to the definition of synergism in *In Re Luvisi* and Colby formula.

Furthermore, as shown in Table A2, at the mixing ratios of imidacloprid to clothianidin of ***8:1, 4:1 and 2:1***, the claimed compositions have synergistic effects in controlling *Plutella xylostella*, according to the definition of synergism in *In Re Luvisi* and Colby formula.

In summary, Applicants have demonstrated synergistic effects of the claimed compositions at different mixing ratios of imidacloprid to clothianidin in controlling different insects, by more than one appropriate method. The synergistic effects rebut the obviousness rejection of present claims 6-15, assuming a *prima facie* case of obviousness could have been established.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Date: September 25, 2009

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